

WHAT IS CLAIMED IS:

- 1 1. A method for inserting a bone block into a
2 patient's intervertebral space, comprising:
3 supporting the bone block in an inserter;
4 advancing the inserter into the intervertebral
5 space;
6 rotating the inserter by 90°, thereby separating
7 the adjacent vertebrae by camming action; and
8 removing the inserter from the intervertebral
9 space.
- 1 2. The method of claim 1, wherein rotating the
2 inserter, thereby separating the adjacent vertebrae by
3 camming action, comprises:
4 engaging convexly curved camming surfaces on the
5 inserter against the adjacent vertebrae.
- 1 3. The method of claim 1, wherein advancing the
2 inserter into the intervertebral space comprises:
3 advancing the inserter through a cannula which has
4 been percutaneously introduced into the patient.
- 1 4. The method of claim 2, wherein,
2 the cannula is introduced in a posterolateral
3 approach.
- 1 5. The method of claim 1, wherein the inserter
2 has a central longitudinally extending axis, and wherein
3 rotating the inserter comprises:
4 rotating the inserter about a central longitudinal
5 axis passing therethrough.
- 1 6. The method of claim 1, wherein removing the
2 inserter comprises:

3 withdrawing the inserter while simultaneously
4 holding the bone block in a stationery position with a push
5 rod, the push rod being slidably received in a
6 longitudinally extending bore in the inserter.

1 7. The method of claim 1, wherein removing the
2 inserter comprises:

3 rotating the bone block to an anchored position
4 such that vertebral support surfaces on the bone block
5 engage the adjacent vertebrae, holding the bone block in
6 position and slidably withdrawing the inserter from the bone
7 block.

1 8. The method of claim 7, wherein the push rod
2 and the bone block are threadably interconnected, with the
3 push rod being received into a threaded bore in the bone
4 block, further comprising:

5 rotating the push rod to unscrew the push rod from
6 the bone block, thereby disconnecting the push rod from the
7 bone block.

1 9. The method of claim 1, wherein removing the
2 inserter from the intervertebral space comprises:

3 removing the inserter in sections, with each of
4 the sections extending the longitudinal length of the
5 inserter.

1 10. The method of claim 9, wherein,
2 the sections comprise two opposite halves of the
3 inserter.

1 11. The method of claims 3, wherein,
2 the cannula has an oval or racetrack-shaped cross
3 section, the cross section being defined by an ellipse
4 having a major dimension and a minor dimension.

1 12. The method of claims 9, wherein,
2 the cannula has an oval or racetrack-shaped cross
3 section, the cross section being defined by an ellipse
4 having a major dimension and a minor dimension.

1 13. The method of claim 12, wherein,
2 the cannula is disposed with the major dimension
3 of the ellipse parallel to the adjacent vertebrae; and
4 the inserter has a cross section defined by a
5 major dimension and a minor dimension, wherein rotation of
6 the inserter causes the major dimension of the inserter to
7 be disposed perpendicular to the adjacent vertebrae.

1 14. The method of claim 13, wherein removing the
2 inserter from the intervertebral space comprises:
3 removing separate sections of the inserter through
4 the cannula when the major dimension of the cross section of
5 the inserter is perpendicular to the major dimension of the
6 cross section of the cannula.

1 15. A method for positioning interlocking first
2 and second bone blocks in a patient's intervertebral space,
3 comprising:
4 supporting a first the bone block in a first
5 inserter;
6 advancing the first inserter into the
7 intervertebral space;
8 rotating the first inserter, thereby separating
9 adjacent vertebrae;
10 removing the first inserter;
11 supporting a second the bone block in a second
12 inserter;
13 advancing the second inserter into the
14 intervertebral space;
15 rotating the second inserter;

16 removing the second inserter;
17 interlocking the first and second bone blocks; and
18 removing the first and second inserters from the
19 intervertebral space.

1 16. The method of claim 15, wherein advancing the
2 first and second inserters into the intervertebral space
3 comprises:

4 advancing the first and second inserters through
5 separate cannulae which have been percutaneously introduced
6 into the patient in posterolateral approaches.

1 17. The method of claim 16, wherein,
2 the first and second cannulae are disposed
3 generally perpendicular to one another.

1 18. The method of claim 15, wherein interlocking
2 the first and second bone blocks comprises:
3 interlocking a protrusion on the first bone block
4 with an aperture on a second bone block.

1 19. The method of claim 15, wherein interlocking
2 the first and second bone blocks comprises:
3 interlocking a notch on the first bone block with
4 a groove on a second bone block.

1 20. The method of claims 18 or 19, further
2 comprising:
3 fastening a fastening pin between the first and
4 second bone blocks.

1 21. A system for introducing a bone block into
2 the intervertebral space of a patient, comprising:
3 an rotatable inserter having two prongs at a
4 distal end; and
5 a bone block received between the two prongs.

1 22. The system of claim 21, wherein, each prong
2 has an outer convexly curved camming surface.

1 23. The system of claim 21, wherein,
2 the two prongs are disposed on opposite sides of
3 the bone block, with each prong having a longitudinally
4 extending groove on an inner surface adjacent the bone
5 block.

1 24. The system of claim 22, wherein,
2 the bone block has lateral protrusions which
3 extend longitudinally along the length of the bone block;
4 and

5 wherein the lateral protrusions on the bone block
6 are dimensioned to mate with the longitudinally extending
7 grooves on the inner surfaces of the prongs such that the
8 bone block can slide longitudinally between the prongs.

1 25. The system of claim 21, further comprising:
2 a cannula dimensioned to receive the inserter
3 therein.

1 26. The system of claim 21, wherein,
2 the cannula has an oval or racetrack-shaped cross
3 section, the cross section being defined by an ellipse
4 having a major dimension and a minor dimension.

1 27. The system of claim 24, wherein,
2 the inserter comprises a first half and a second
3 half which are separable from one another such that the
4 first and second halves can be separately withdrawn through
5 the cannula.

1 28. The system of claim 21, wherein,
2 the bone block has at least one anchoring fin.

1 29. The system of claim 21, wherein,
2 the bone block is cannulated along its length.

1 30. The system of claim 29, further comprising:
2 a fastening pin dimensioned to be received in the
3 cannulation in the bone block.

1 31. The system of claim 21, further comprising:
2 a second bone block, wherein the second bone block
3 is adapted to interlock with the bone block.

1 32. A bone block having opposite vertebral
2 contact surfaces and opposite sides spanning between the
3 opposite vertebral contact surfaces, wherein,
4 the opposite vertebral contact surfaces each have
5 a width which is about 20% to 60% of the height of the
6 opposite sides spanning between the opposite vertebral
7 contact surfaces.

1 33. The bone block of claim 32, wherein,
2 the bone block has lateral protrusions which
3 extend longitudinally along the length of the bone block.

1 34. The bone block of claim 32, wherein,
2 the bone block has an angled front end.

1 35. The bone block of claim 32, wherein,
2 the bone block tapers between longitudinally
3 spaced apart ends, thereby compensating for a lordotic angle
4 between adjacent vertebrae in the patient's intervertebral
5 space.

1 36. A method for inserting a plurality of bone
2 blocks in a patient's intervertebral space, comprising:
3 supporting a first bone block in a first inserter;
4 advancing the first inserter through a first
5 cannula into the intervertebral space;

6 rotating the first inserter, thereby positioning
7 the first bone block between adjacent vertebrae;
8 removing the first inserter;
9 advancing a first push rod through a second
10 cannula to move the first bone block away from the distal
11 end of the first cannula;
12 supporting a second the bone block in a second
13 inserter;
14 advancing the second inserter through the second
15 inserter into the intervertebral space;
16 rotating the second inserter;
17 removing the second inserter; and
18 advancing a second push rod through the first cannula to
19 move the second bone block in an direction away from a
20 distal end of the second cannula.

1 37. The method of claim 36, wherein,
2 the directions away from the distal ends of the
3 first and second cannulae are anterior directions.

1 38. The method of claim 36, further comprising:
2 supporting a third bone block in the first inserter;
3 advancing the first inserter through a first
4 cannula into the intervertebral space;
5 rotating the first inserter, thereby positioning
6 the third bone block between adjacent vertebrae;
7 removing the first inserter; and
8 advancing a first push rod through the second
9 cannula to move the third bone block away from the distal
10 end of the first cannula.

1 39. The method of claim 38, further comprising:
2 supporting a fourth bone block in the second
3 inserter;
4 advancing the second inserter through the second
5 cannula into the intervertebral space;

6 rotating the second inserter, thereby positioning
7 the fourth bone block between adjacent vertebrae;
8 removing the second inserter; and
9 advancing the second push rod through the first
10 cannula to move the fourth bone
11 block away from the distal end of the second cannula.

1 40. A bone block intervertebral insert comprising:
2 an electrical transducer within the body of the
3 insert, the transducer adapted to produce electrical current
4 of a type and in an amount sufficient to induce osteogenesis
5 in adjacent vertebrae as the result of relative spinal
6 loading of the insert.

7
8 41. The method of claim 15, wherein interlocking
9 the first and second bone blocks comprises:
10 suturing the first and second bone blocks
11 together.